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24 July 1964
Quonset Eye

July 23, 1964

List of Questions for Technical Monitor for High Resolution Step and Repeat Contact Printer.

Will get 1. What are typical format dimensions for the film sizes as specified?

Will get 2. Will masking crop part of film data to be reproduced? Define areas outside of format to be reproduced.

No ✓ 3. Will films be perforated?

Will get 4. List of MIL SPEC spools to be used. Is 6.6" and 8" standard American film?

✓ 5. Can we obtain samples of commercial splices likely to be encountered?

6. What are the limits of over-and-under exposure likely to be encountered that must be compensated for? Can this be defined in terms of standard 21-step tablet? If not, can we get samples of over and under exposed films?

✓ 7. Is film primarily for reconnaissance application or also for mapping?

8. Film coding philosophy discussion - clarification and specific examples. ←

None ✓ 9. What methods are presently used for film coding?

✓ 10. Is printer size or weight limited by facility environment? Example, doorway openings, wood or concrete floor, etc.

✓ 11. Where is venting for exhaust air?

✓ 12. Agency assistance in obtaining government documents.

✓ 13. Can we provide R.F.I. design plan for approval in lieu of R. F. I. testing?

✓ 14. Human Factors

✓ a. Ambient light levels

✓ b. Ambient noise levels

✓ c. Types and colors of associated equipment

✓ d. Types of controls on associated equipment

✓ e. Color of surroundings

Get OK for use by
Technical Note #4
Photographic Considerations
For aerospace Recon.

STAT
STAT

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NGA Review Complete

cs Dec 67 for Aero. Sys. Div. WPAFB

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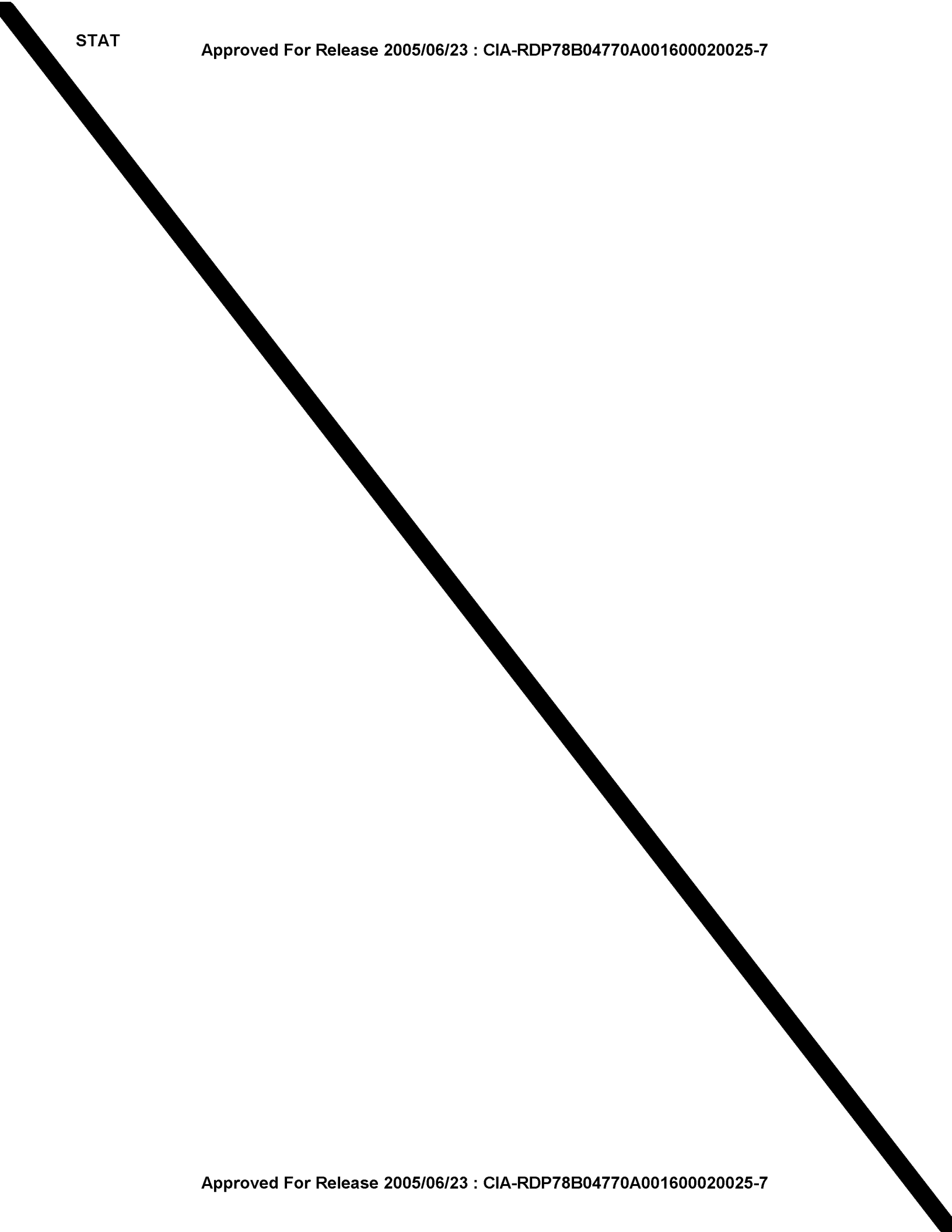

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24 July Quarters EYE

GTARADA Printer

Tentative List of Technical Queations for Monitors

1- Skewness in negative frames. Amount of mis alignment in 30". Rotate film on reseau to compensate?

2- Further clarification on Automatic Exposure Control. If full-frame integrated exp. control is inadequate and auto. dodging is not rigid where inbetween the two extremes is acceptable?

3- Pre-view & hole/slot punch station. An integral part of machine or separate station? Clarification of pre-alignment techniques and later usage of hole/slot function. Hole/slot all on one edge of films of various sizes?

4- What is primary usage of printer---to make positives from negatives? Isn't the negative an automatice exposure control in itself?

5- What is spacing between negatives? Is spacing between duplicates critcal? What is a practical tolerance limit to film advance?

6- Do duplicating films ever have opaque anti-halation backing? Can we print or sense exposure control through dupe. film?

7- Are reseau lines on film to be black lines or white lines? What happens to black lines in areas of high density?

8- What happens to resolution requirement when printing through film base rather than emulsion-to-emulsion? Which is typcial method.

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✓ 9- In measuring uniformity of exposure across platen area, are photometric measurements at the platen satisfactory? This is preferred over sensitometric measurements on processed film?

✓ 10- Is measurement of resolution by microscope fully acceptable or is a micro-densitometer mandatory?

✓ 11- What type of cleaning for dupe. film is required, if any. Vacuum cleaning, ultrasonic, STAT [redacted] Integral part of machine or separate station?

✓ 12- Further clarification of clean-air system. Ducting into floor? What size duct? Capacity limitations? Clean air from facility supply?

✓ 13- Further clarification of usage of MIL-SPECS. Is compliance and test required for RFI, etc.?

14- Present usage of reseau grids? Present methods?

✓ 15- Resolution targets. What is best available to Agency at present?

✓ 16- Any difficulties or objections to split-beam exposure control sensing? Through film or by reflection? Over-ride control on AEC?

✓ 17- Masking system for various size films. Can masks vary in one dimension only, or must length and width be controllable?

✓ 18- Rewinding of film. Rewind after pre-viewing? Rewind after cleaning? Respooling after exposure of originals?

✓ 19- Further discussion on "Briefing Board" or visual aides. Artist's conception at this stage.

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20- Is AEC required during semi-automatic mode when utilizing reseau grid? Para. 3.1 of Spec.

21- Discuss delays imposed by delays in obtaining approvals from Monitors. Design Analysis and Design Plan. Drawings, etc.

22- Form of L/O dwgs. in submission of Design Plan?

23- Type of cutter preferred for removing partial rolls of film? Paper-chopper type? Manual or electirc?

24- Size of reseau glass above and beyond 9½" X 30" format area?

25- Standard procedure for splice detection and bypass?

26- Flatness tolerance for reseau and stage plate?

27- Typical range of negative density. Samples? .2 - 3.2

28- Operation of machine. Dark-room or daylight. Daylight loading of film? Spools or magazines?

29- Calibrate reseau? Can we supply calibration charts for certain films?

30- P. I. interpretation of density. Manual over-ride?

31- ~~Space or weight~~ limitations. Floor, door limitations.

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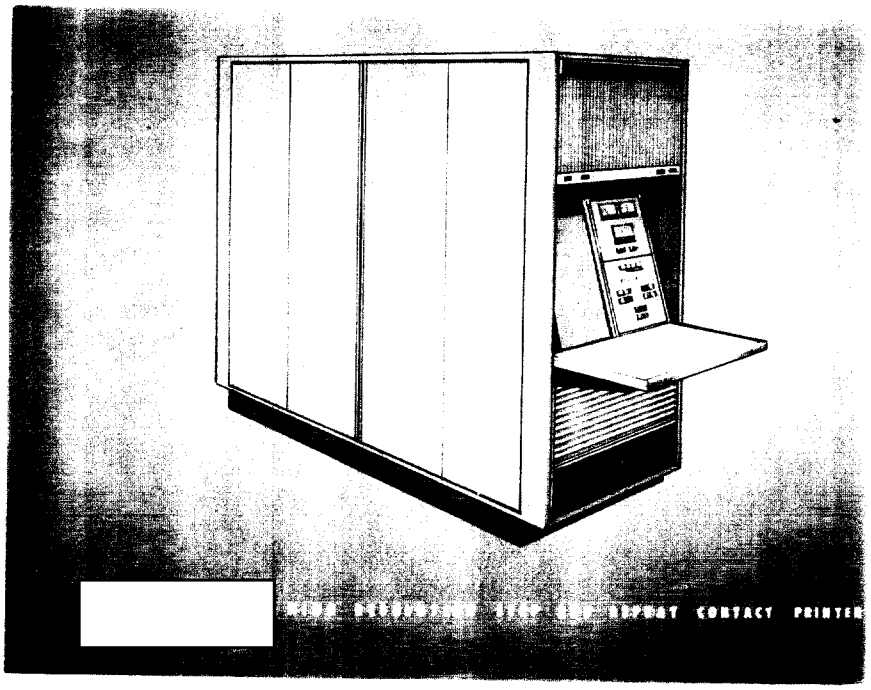

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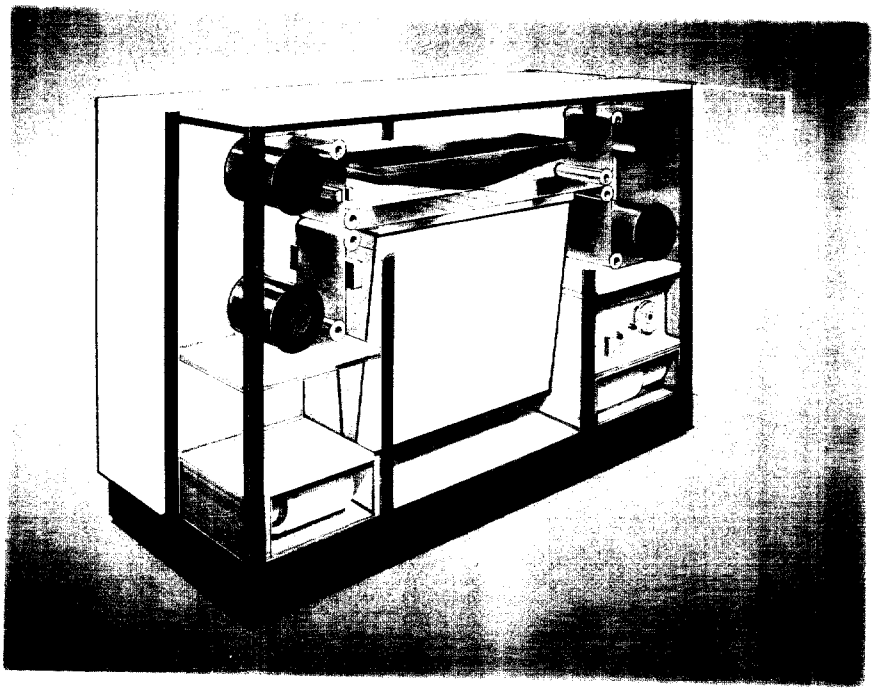

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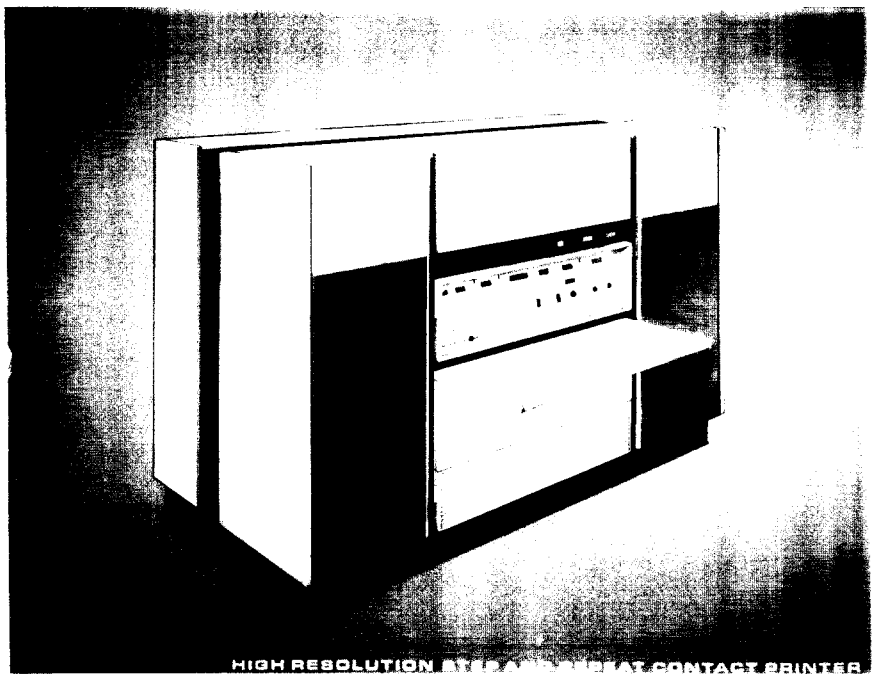

HIGH RESOLUTION [illegible] CONTACT PRINTER

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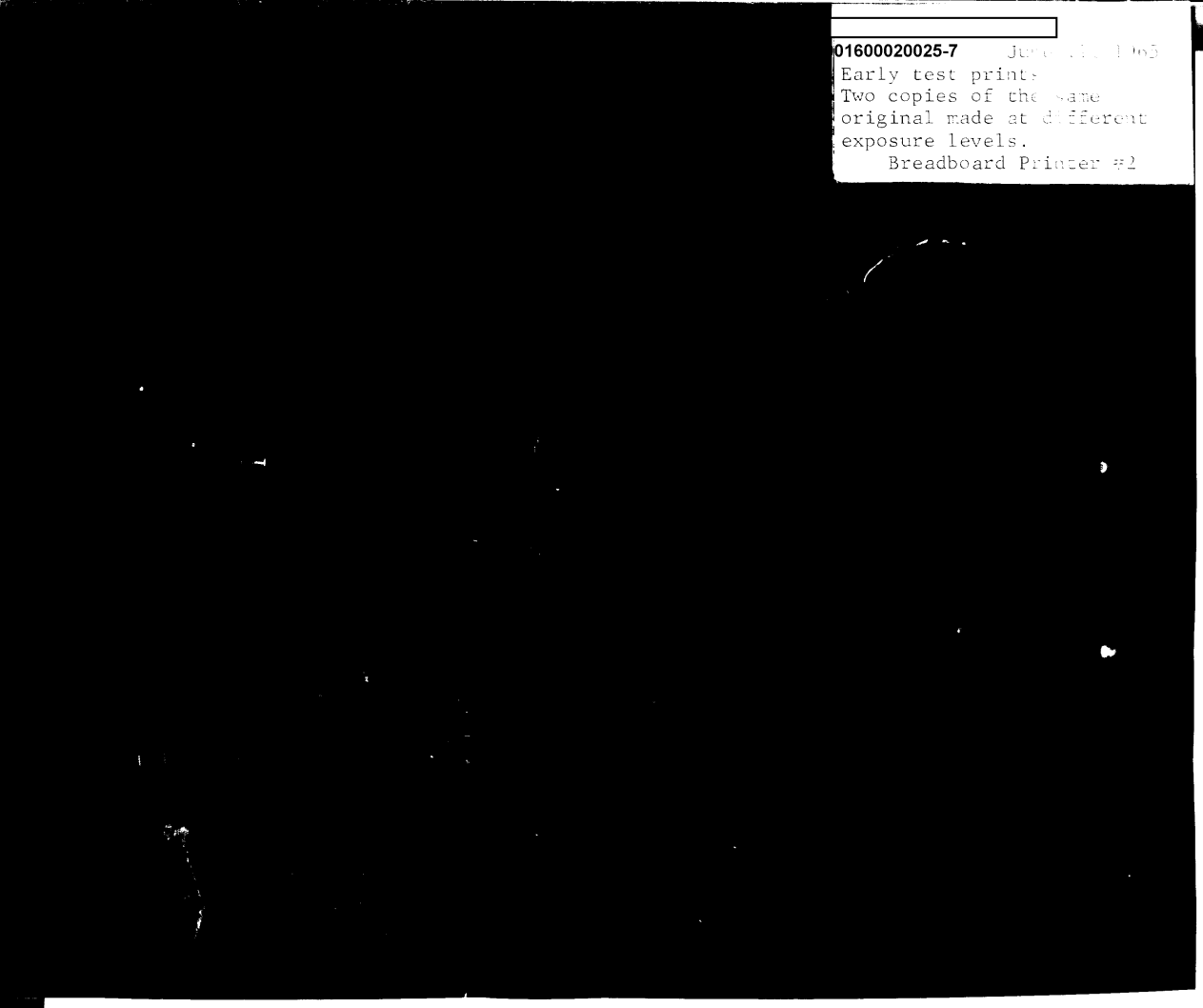
STAT

01600020025-7

Early test print.
Two copies of the same
original made at different
exposure levels.
Breadboard Printer #2



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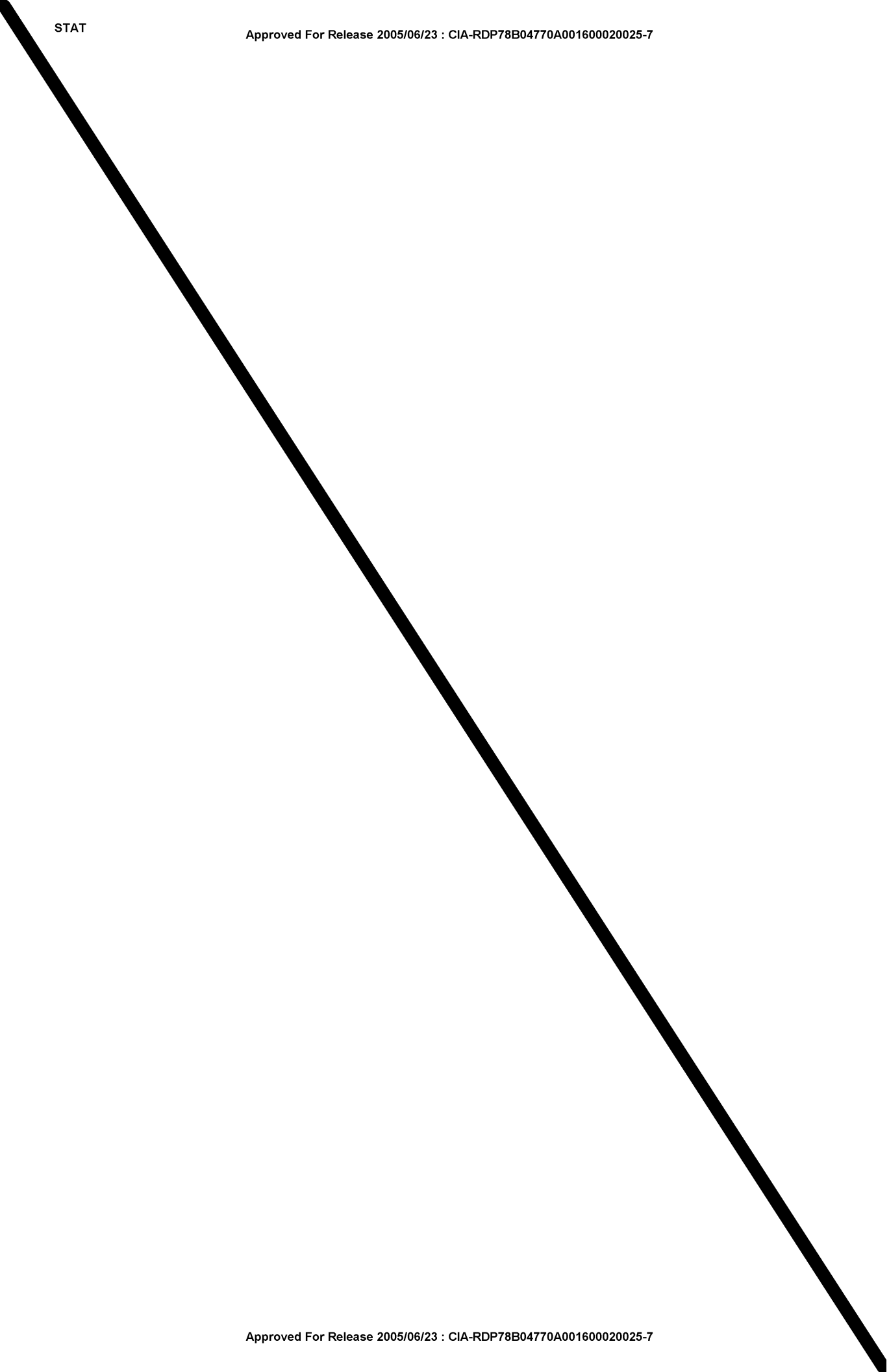

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2/7/66

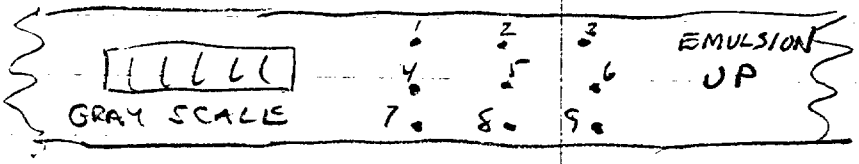
PRINTER #2 TESTS - RESOLUTION & GRAY SCALE USING CONTRACTOR'S TARGETS.

EXAMINATION OF INPUT RESOLUTION TARGETS - 2 TARGETS UNDER MICROSCOPE (LEITZ @ 220x)

TARGET #1 READ THROUGH 8/6 CLEARLY, 9/1 WAS DIFFICULT

TARGET #2 READ THROUGH 8/6 CLEARLY, 9/2 WAS READABLE, 6/1 WAS DIFFICULT. CONTRAST WAS NOT READ.

TARGET ARRANGEMENT ON 70 MM



DIRECTION OF SCAN

TESTS 1-4 TARGET IN CENTER OF PLATEN:

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INPUT TARGET RESOL. READINGS

TARGET #	R.P.	
1	9-1	634
2	9-2	707
3	9-2	707
4	9-2 DAMAGED	707
5	9-2	707
6	9-1	634
7	9-2	707
8	9-1 DAMAGED	634
9	9-2	707

INPUT GRAY SCALE:

STEP	D	STEP	D
1	0.04	13	1.85
2	.195	14	2.0
3	.35	15	2.15
4	.50	16	2.32
5	.65	17	2.47
6	.79	18	2.61
7	.90	19	2.76
8	1.0	20	2.90
9	1.27	21	3.10
10	1.37		
11	1.53		
12	1.70		

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Lamp Current

TEST 1: 70mm 8430 FILM (SUPPLIED BY CONTRACTOR). 75 ma. ON LAMP. 4 RUNS

TEST 2: 70 mm. 8430 100 ma. 4 runs

TEST 3: 70 mm 8430 150 ma. 4 runs

TEST 4: 70 mm 8430 200 ma. 4 runs

TEST 5: 70 mm 8430
2 runs along edge of platen 100 ma

TEST 6: 70 mm SO 267
2 runs center of platen 2.95 A.

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TEST 7 8430 TARGET CENTERED
400 ma on lamp
3 runs — 1 for xerox

TEST 8 8430 TARGET
800 ma on lamp - Target centered
3 runs — 1 for xerox

TEST 9 8430 Target on edge 400 ma
2 runs

TEST 10 8430 Target on edge - 800 ma
2 runs

7-5
278 LINES/MM

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EXPOSURE

Sensitometer Niagra Printer Experimenter DRC Date 1/12 1966 Witness Date

Illuminant Quality

Tablet No. S.N.D.

Exposure Time

DEVELOPMENT

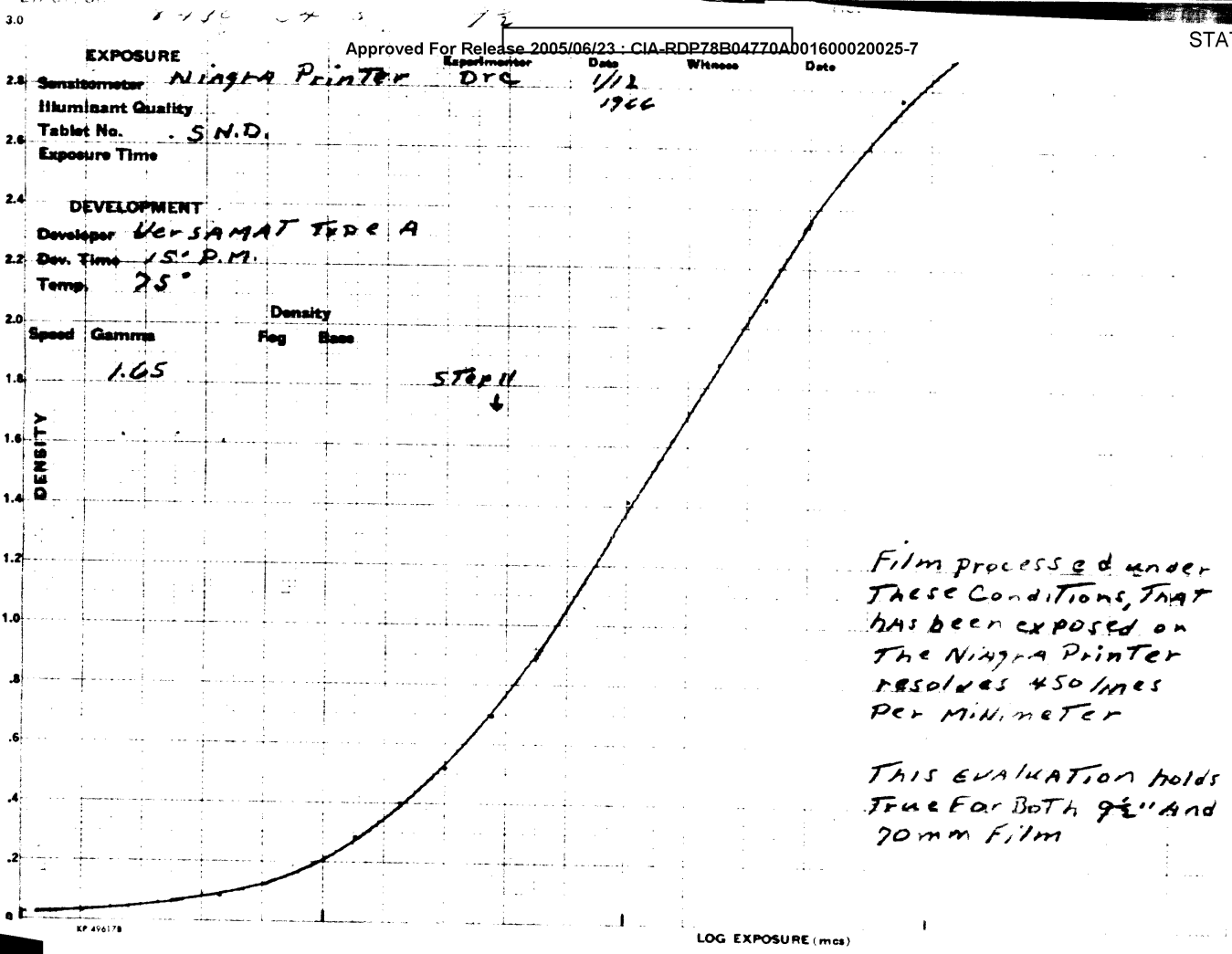
Developer VERSAMAT TYPE A

Dev. Time 15' P.M.

Temp. 25°

Speed	Gamma	Density Fog	Density Base
	1.65		

STEP 11 ↓



Film processed under These Conditions, That has been exposed on The Niagra Printer resolves 450 lines Per Milimeter

This evaluation holds True For Both 9½" And 70mm Film

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NO. 15R - 10½ GRAPH PAPER
10 X 10 PER HALF INCH
VISIGRAPH
MADE IN U S A

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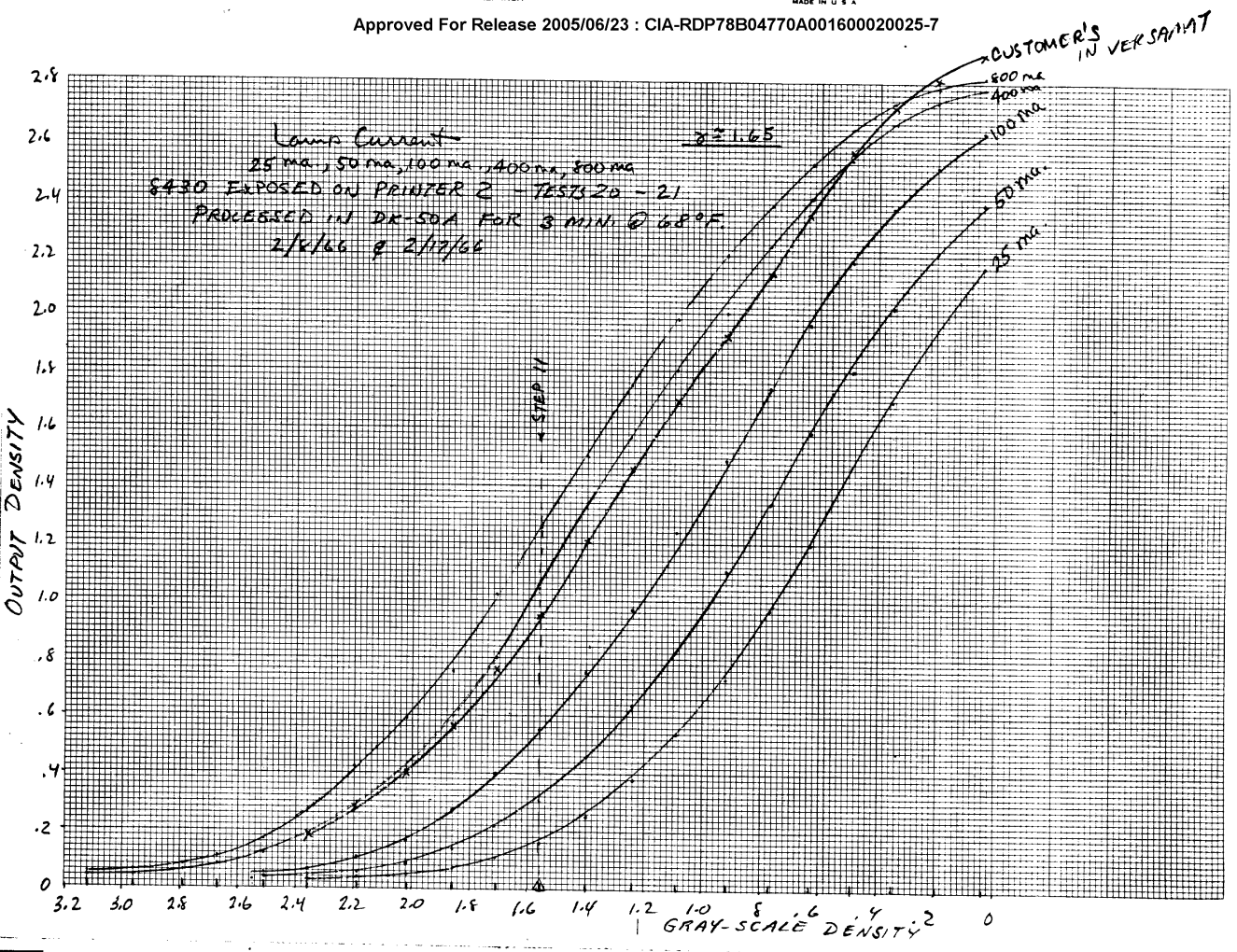

Lamp Current
25 ma, 50 ma, 100 ma, 400 ma, 800 ma
8430 EXPOSED ON PRINTER 2 - TEST320 - 21
PROCESSED IN DK-50A FOR 3 MIN @ 68°F.
2/16/66 & 2/17/66

$\gamma = 1.65$

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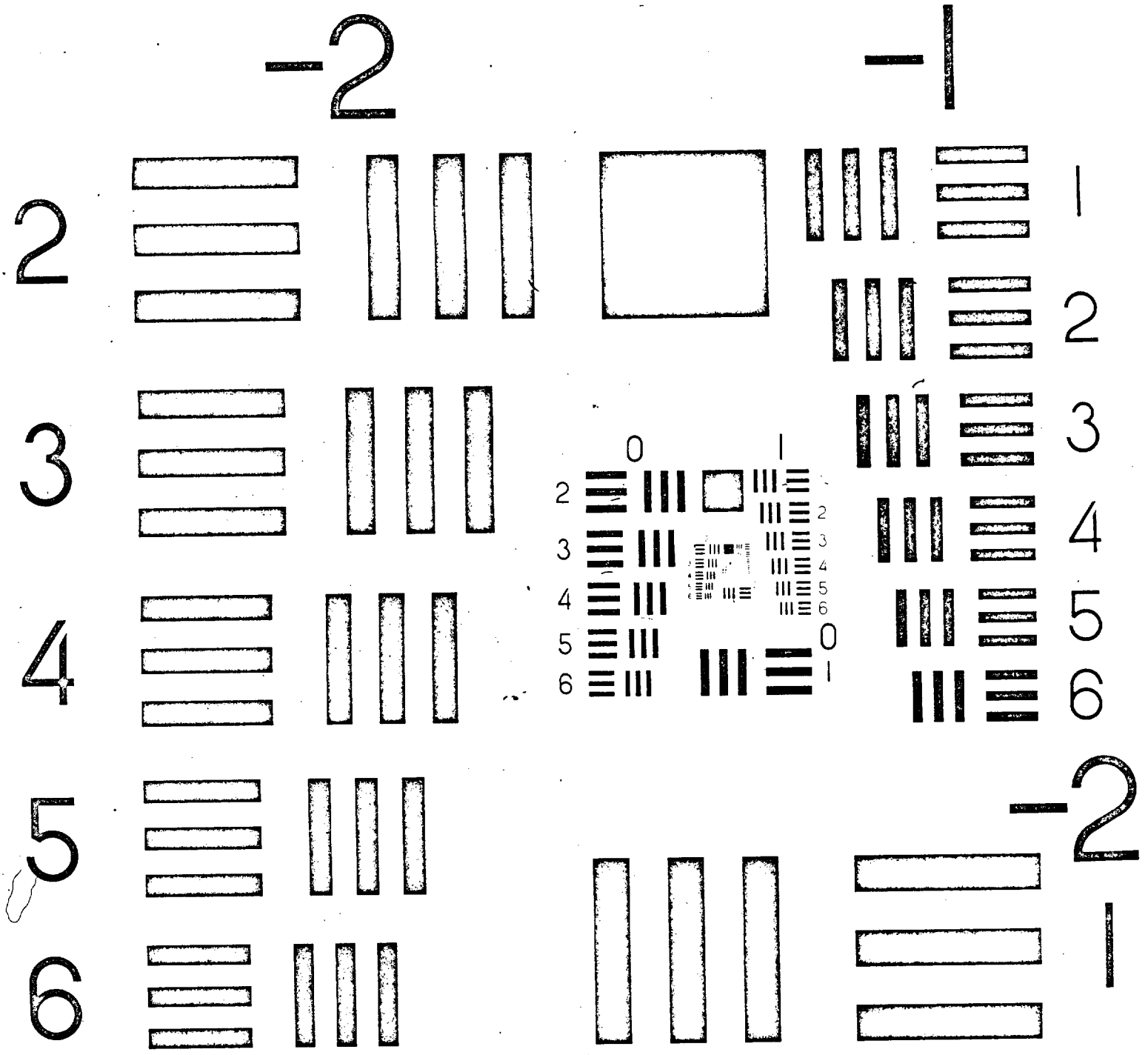

USAF 1951
IX

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CHART OF RESOLVING POWER VALUES WHEN ORIGINAL TARGET IS OPTICALLY REDUCED 200 TIMES

Group No.	Target No.	Resolving Power (lines per mm)
-2	1	50.0
	2	56.2
	3	63.0
	4	70.6
	5	79.2
	6	89.0
-1	1	100
	2	112
	3	126
	4	141
	5	158
	6	178
0	1	200
	2	224
	3	256
	4	282
	5	318
	6	356
1	1	400
	2	450
	3	504
	4	566
	5	636
	6	712

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TEST 1 – customers original target at center of platen – 3 exposures each:

A. 400 ma. lamp current

B. 800 ma " "

C. 2 Amps " "

TEST 2

CUSTOMERS TARGETS 4" X 4" & 4" X 7" 3 exposures each

A. 30MA. LAMP CURRENT

B. 40MA " "

C. 50MA. " "

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NO. 15R - 10½ GRAPH PAPER
10 X 10 PER HALF INCH
VISIGRAPH
MADE IN U.S.A.
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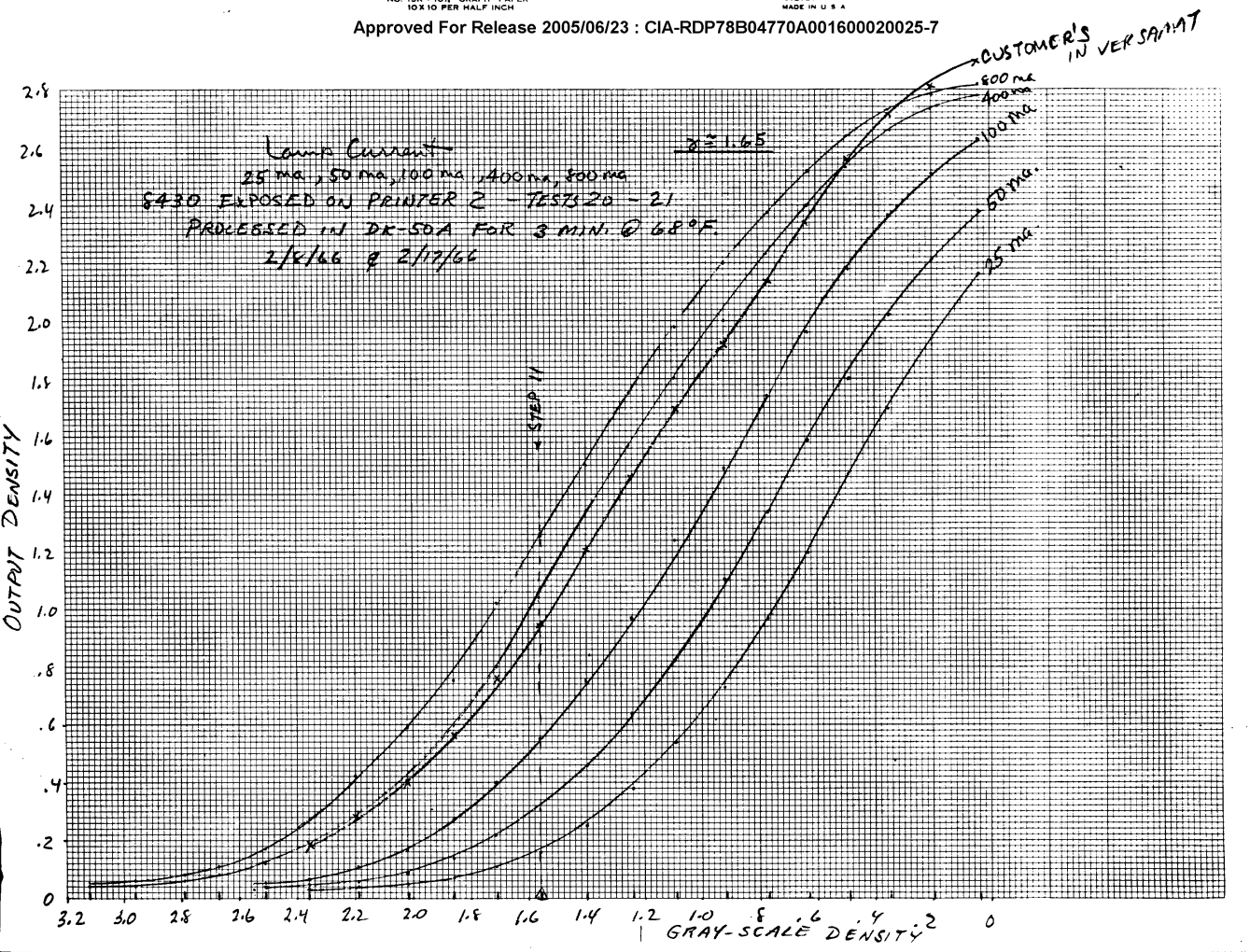

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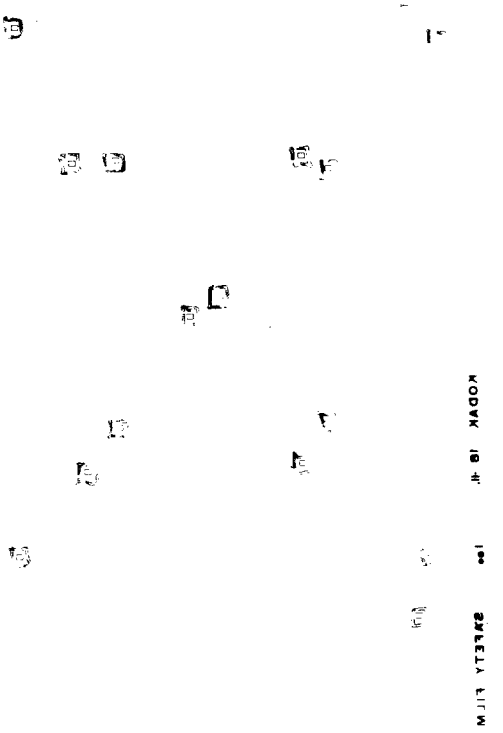
2A 30 MA 4X5 5X7 TARGETS

5X7

4X5



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4X5	TARGET	5X7	TARGET
8-1	317	7-6	278
8-2	354	8-1	317
8-2	354	8-1	317
8-2	354	8-2	354
8-1	317	8-2	354
8-1	317	8-2	354
8-2	354	8-2	354

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70 MM 400 MA

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1-B

1-B

1-C

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5x7

4x5

4x5, 5x7 TAIR.

KODAK

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4 x 5

GROUP - STEP	RESOLUTION
8 - 2	354
8 - 2	354
8 - 2	354
8 - 2	354
8 - 2	354
8 - 2	354
8 - 2	354
8 - 1	317

5 x 7

GROUP - STEP	RESOLUTION
8 - 2	354
8 - 1	317
8 - 2	354
8 - 1	317
8 - 1	317
7 - 6	278
7 - 6	278

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5x7 Approved For Release 2005/06/23 : CIA-RDP78B04770A001600020025-7 4x5
2B 70MA
5x7, 4x5

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4 x 5

GROUP - STEP	RESOLUTION
8-2	354
8-1	317
8-2	354
8-1	317
8-2	354
8-2	354
8-1	317
8-2	354

5 x 7

GROUP - STEP	RESOLUTION
8-2	354
7-6	278
8-2	354
8-2	354
8-2	354
7-6	278
7-6	278

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9½"
H+D and resolution
Target samples
EMULSION 8430-54-3

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70MM

H+d and resolution Target samples.

EMULSION 8430-109-14

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